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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,322	02/19/2002	Tae-Sik Oh	P56654	2861

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EXAMINER

HARPER, HOLLY R

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 10/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/076,322	OH, TAE-SIK	
	Examiner	Art Unit	
	Holly R. Harper	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,7 and 12-17 is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8-11,18-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/19/2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. In claim 15, the “the third plurality of beam passage apertures including at least a first beam passage aperture and the forth plurality of beam passage apertures including at least a second beam passage aperture having a position at least approximately corresponding to a position of the first beam passage aperture” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
2. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 1 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “single cathode” is indefinite. It is unclear whether there is a single cathode with only one electron beam, meaning it is a monochromatic electron gun or if it is a cathode

referring to 3 electron beams. The claim also refers to a plurality of beam holes so for purposes of examination, it is believed that there are 3 cathodes with 3 electron beams being produced.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3-6, and 18 are rejected under 35 U.S.C. 103(a) as being obvious over Tojyou et al. (USPN 5,608,284) in view of Montie et al. (USPN 5,668,448).

In regard to claims 1 and 18, the Tojyou reference discloses an electron gun apparatus for a cathode ray tube (Figure 3). The electron gun has a cathode emitting an electron beam (Figure 9, Element 7), the electron beam being scanned in a scanning direction (this could be either in the x or y direction but for examination purposes the scanning direction will be the y direction), a first electrode is mounted adjacent to the cathode (Figure 9, Element 9). The first electrode forms a plurality of beam passage apertures aligned in an alignment direction substantially perpendicular to the scanning direction (Figure 3) and a second electrode is mounted adjacent to the first electrode (Figure 9, Element 10). The first electrode is disposed between the second electrode and the cathode with the cathode and first and second electrodes forming a triode portion (Figure 9). The second electrode has a plurality of beam passage apertures aligned in the alignment direction (Figure 9, Element 10). The electron beam penetrates at least one of the first plurality of beam passage apertures and at least one of the second plurality of beam passage

apertures (Figure 9). A plurality of focusing electrodes are mounted adjacent to each other (Figure 9, Elements 13a-13d). There are at least three. The focusing electrodes include one focusing electrode mounted adjacent to the second electrode (Figure 9, Element 13a) and a last focusing electrode (Figure 9, Element 13d). The focusing electrode is disposed between the second electrode and the last focusing electrode (Figure 9, Element 13a). An anode electrode is mounted adjacent to the last focusing electrode (Figure 9, Element 14).

The Tojyou reference does not specifically disclose a support for the cathode and electrodes. The Montie reference teaches that the different components of the gun (the electrodes and cathodes) are held together at both sides by means of an insulating support (Figure 2, Element 47). The electron gun is assembled together using the insulating support. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate an insulating support, as taught by Montie, to hold the components of the electron gun together.

In regard to claim 3, the Tojyou reference discloses that the cathode emitting the electron beam in a tube-axis direction (z-axis) is substantially perpendicular to the scanning direction (y – axis) and the alignment direction (x-axis) is substantially perpendicular to the scanning and tube-axis directions (Figure 3).

In regard to claim 4, the Tojyou reference discloses that the first plurality of beam passage apertures (Figure 9, Element 9) have a center aligned with a center of a respective one of the second plurality of beam passage apertures (Figure 9, Element 10) as viewed in a direction substantially parallel to the tube-axis direction.

In regard to claim 5, the Tojyou reference discloses that every one of the first plurality of beam passage apertures and every one of the second plurality of beam passage apertures have the same size and shape (Figure 9, Elements 9 and 10).

In regard to claim 6, the Tojyou reference discloses that each one of the first plurality of beam passage apertures has a center aligned with a center of a respective one of the second plurality of beam passage apertures as viewed in a direction substantially parallel to the tube-axis direction (Figure 9).

7. Claims 1, 3, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerritsen et al. (USPN RE 33,592) in view of Montie et al. (USPN 5,668,448).

In regard to claim 1, the Gerritsen reference discloses an electron gun apparatus for a cathode ray tube (Figure 1). The electron gun has a cathode emitting an electron beam (Figure 6b, Element 22), the electron beam being scanned in a scanning direction (this could be either in the x or y direction but for examination purposes the scanning direction will be the y direction), and a first electrode is mounted adjacent to the cathode (Figure 6b, Element 20). The first electrode forms a plurality of beam passage apertures aligned in an alignment direction substantially perpendicular to the scanning direction (Figure 1) and a second electrode is mounted adjacent to the first electrode (Figure 6b, Element 27). The first electrode is disposed between the second electrode and the cathode with the cathode and first and second electrodes forming a triode portion (Figure 6b). The second electrode has a plurality of beam passage apertures aligned in the alignment direction (Figure 6b, Element 27). The electron beam penetrates at least one of the first plurality of beam passage apertures and at least one of the second plurality of beam passage apertures (Figure 6b). A plurality of focusing electrodes are

mounted adjacent to each other (Figure 6b, Elements 28 and 29). The focusing electrodes include one focusing electrode mounted adjacent to the second electrode (Figure 6b, Element 28) and a last focusing electrode (Figure 6b, Element 29). The focusing electrode is disposed between the second electrode and the last focusing electrode (Figure 6b, Element 29). An anode electrode is mounted adjacent to the last focusing electrode (Figure 6b, Element 30).

The Gerritsen reference does not specifically disclose a support for the cathode and electrodes. The Montie reference teaches that the different components of the gun (the electrodes and cathodes) are held together at both sides by means of an insulating support (Figure 2, Element 47). The electron gun is assembled together using the insulating support. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate an insulating support, as taught by Montie, to hold the components of the electron gun together.

In regard to claim 3, Gerritsen reference discloses that the cathode emitting the electron beam in a tube-axis direction (z-axis) is substantially perpendicular to the scanning direction (y – axis) and the alignment direction (x-axis) is substantially perpendicular to the scanning and tube-axis directions (Figure 3).

In regard to claim 11, the Gerritsen reference discloses that the second electrode includes a first sub-electrode (Figure 6b, Element 24) mounted adjacent to the first electrode and a second sub-electrode (Figure 6b, Element 25) mounted between the first sub-electrode and the plurality of focusing electrodes (Figure 6b, Elements 28 and 29). The first sub-electrode has a third plurality of beam passage apertures. The second sub-electrode has a fourth plurality of beam passage apertures. Each one of the third plurality of beam passage apertures having a center

aligned with a center of a respective one of the fourth plurality of beam passage apertures in a direction substantially parallel to the tube-axis direction (Figure 6b).

8. Claims 1, 3, 8-10, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maninger et al. (USPN 4,877,998) in view of Montie et al. (USPN 5,668,448).

In regard to claim 1, the Maninger reference discloses an electron gun apparatus for a cathode ray tube (Figure 1). The electron gun has a cathode emitting an electron beam (Figure 5, Element 42), the electron beam being scanned in a scanning direction (this could be either in the x or y direction but for examination purposes the scanning direction will be the y direction), and a first electrode is mounted adjacent to the cathode (Figure 5, Element 44). The first electrode forms a plurality of beam passage apertures aligned in an alignment direction substantially perpendicular to the scanning direction (Figure 1) and a second electrode is mounted adjacent to the first electrode (Figure 5, Element 68). The first electrode is disposed between the second electrode and the cathode with the cathode and first and second electrodes forming a triode portion (Figure 5). The second electrode has a plurality of beam passage apertures aligned in the alignment direction (Figure 5, Element 68). The electron beam penetrates at least one of the first plurality of beam passage apertures and at least one of the second plurality of beam passage apertures (Figure 5). A plurality of focusing electrodes are mounted adjacent to each other (Figure 5, Elements 52 and 54). The focusing electrodes include one focusing electrode mounted adjacent to the second electrode (Figure 5, Element 52) and a last focusing electrode (Figure 5, Element 54). The focusing electrode is disposed between the second electrode and the last focusing electrode (Figure 5, Element 54). An anode electrode is mounted adjacent to the last focusing electrode (Figure 5, Element 56).

The Maninger reference does not specifically disclose a support for the cathode and electrodes. The Montie reference teaches that the different components of the gun (the electrodes and cathodes) are held together at both sides by means of an insulating support (Figure 2, Element 47). The electron gun is assembled together using the insulating support. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate an insulating support, as taught by Montie, to hold the components of the electron gun together.

In regard to claim 3, Maninger reference discloses that the cathode emitting the electron beam in a tube-axis direction (z-axis) is substantially perpendicular to the scanning direction (y – axis) and the alignment direction (x-axis) is substantially perpendicular to the scanning and tube-axis directions (Figure 5).

In regard to claim 8, the Maninger reference discloses that each one of the first plurality of beam passage apertures (Figure 5, Element 44) has a position corresponding to a respective one of the second plurality of beam passage apertures (Figure 5, Element 68). The first plurality of beam passage apertures includes at least a first beam passage aperture, the second plurality of beam passage apertures including at least a second beam passage aperture having a position at least approximately corresponding to a position of the first beam passage aperture (Figure 5). The first beam passage aperture is adjacent to the second beam passage aperture and portions of the electron beam pass through both the first beam passage aperture and the second beam passage aperture (Figure 5). The first beam passage aperture has a center not aligned with a center of the second beam passage aperture as viewed in a direction substantially parallel to the tube-axis direction (Figure 5).

In regard to claim 9, the Maninger reference discloses that the center of the first beam passage aperture (Figure 5, Element 44) is spaced apart from the center of the second beam passage aperture in the alignment direction (Figure 5, Element 68).

In regard to claim 10, the Maninger reference discloses that the second beam passage aperture (Figure 5, Element 68) is larger than the first beam passage aperture (Figure 5, Element 44).

In regard to claim 19, the Maninger reference discloses an electron gun apparatus for a cathode ray tube (Figure 1). The electron gun has a cathode emitting an electron beam (Figure 5, Element 42), the electron beam being scanned in a scanning direction (this could be either in the x or y direction but for examination purposes the scanning direction will be the y direction), and a first electrode is mounted adjacent to the cathode (Figure 5, Element 44). The first electrode forms a plurality of beam passage apertures aligned in an alignment direction substantially perpendicular to the scanning direction (Figure 1) and a second electrode is mounted adjacent to the first electrode (Figure 5, Element 68). The first electrode is disposed between the second electrode and the cathode with the cathode and first and second electrodes forming a triode portion (Figure 5). The second electrode has a plurality of beam passage apertures aligned in the alignment direction (Figure 5, Element 68). Each of the first plurality of beam passage apertures is formed to have a position corresponding to a respective one of the second plurality of beam passage apertures (Figure 5). A plurality of focusing electrodes are mounted adjacent to each other (Figure 5, Elements 52 and 54). The focusing electrodes include one focusing electrode mounted adjacent to the second electrode (Figure 5, Element 52) and a last focusing electrode (Figure 5, Element 54). The focusing electrode is disposed between the second electrode and the

last focusing electrode (Figure 5, Element 54). An anode electrode is mounted adjacent to the last focusing electrode (Figure 5, Element 56). The electron beam penetrates at least one of the first plurality of beam passage apertures and at least one of the second plurality of beam passage apertures, the focusing electrodes, and the anode electrode (Figure 5, Element A). At least one of the first plurality of beam passage apertures has a center aligned with a center of a corresponding one of the second plurality of beam passage apertures as viewed in a direction substantially parallel to the tube-axis direction (Figure 5, Element 44 and 68, either the top or bottom aperture). At least one of the first plurality of beam passage apertures has a center not aligned with a center of a corresponding one of the second plurality of beam passage apertures as viewed in a direction substantially parallel to the tube-axis direction (Figure 5, Element A, 44 and 68, the middle aperture).

The Maninger reference does not specifically disclose a support for the cathode and electrodes. The Montie reference teaches that the different components of the gun (the electrodes and cathodes) are held together at both sides by means of an insulating support (Figure 2, Element 47). The electron gun is assembled together using the insulating support. Thus, it would have been obvious at the time the invention was made to a person having ordinary skills in the art to incorporate an insulating support, as taught by Montie, to hold the components of the electron gun together.

In regard to claim 20, the Maninger reference discloses that the first and second plurality of apertures have a circular shape (Figure 8 and 9) as viewed in a direction substantially parallel to the tube-axis direction. At least one of the second plurality of beam passage apertures is larger than at least one of the first plurality of beam passage apertures (Figure 5, Elements 44 and 68).

Allowable Subject Matter

9. Claims 2, 7, and 12-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 2, 7, and 14, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 2, 7, and 14, and specifically comprising the limitation of the length of the electrode being greater than or equal to two times the aperture diameter and less than or equal to eight times the aperture diameter.

Regarding claim 12, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claim 12, and specifically comprising the limitation of the plurality of beam apertures of the first electrode, first sub-electrode, and second sub-electrode all having the same shape and size.

Regarding claim 13, claim 13 is allowable for the reasons given in claim 12 because of its dependency status from claim 12.

Regarding claims 15, the references of the Prior Art of record fails to teach or suggest the combination of the limitations as set forth in claims 15, and specifically comprising the limitation of the fourth plurality of beam passage apertures including at least a second beam passage aperture having a position at least approximately corresponding to a position of the first beam passage aperture of the first plurality of beam passage apertures.

Regarding claims 16-17, claims 16-17 are allowable for the reasons given in claim 16-17 because of their dependency status from claim 16-17.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kimiya et al. (USPN 5,694,004) discloses an electron gun with an aperture diameter of .3 mm.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Harper whose telephone number is (703) 305-7908. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel, can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Holly Harper
Patent Examiner
Art Unit 2879



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